City of Aurora

Purchasing Division • Finance Department • 44 E. Downer Place • Aurora, Illinois 60507-2067
(630) 844-3618 • FAX (630) 844-3636

Bruce Lawrie
Director
Purchasing & Central Services

CITY OF AURORA
REQUEST FOR PROPOSAL

NETWORK DATA WIRING CLOSET
AIR CONDITIONING WITH
HVAC CONTROL AND MONITORING

FOR MANAGEMENT INFORMATION SYSTEMS DIVISION
INFORMATION TECHNOLOGY DEPARTMENT

PROPOSALS DUE AUGUST 13, 2008
BY 2:00 P.M.

City Clerk's Office
City Hall Building
44 East Downer Place
2nd Floor
Aurora, Illinois

CITY OF AURORA

REQUEST FOR PROPOSALS

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Bruce Lawrie
Director
Purchasing & Central Services

July 25, 2008

CITY OF AURORA
REQUEST FOR PROPOSALS
08-25
NETWORK DATA WIRING CLOSET AIR CONDITIONING
WITH HVAC CONTROL AND MONITORING
FOR MANAGEMENT INFORMATION SYSTEMS DIVISION
INFORMATION TECHNOLOGY DEPARTMENT

The City of Aurora is seeking proposals from qualified contractors to upgrade the Network Data Wiring Closet Air Conditioning with HVAC Control and Monitoring for Management Information Systems Division Information Technology Department.

Sealed proposals will be received at the City Clerk's Office, 44 E. Downer Place, Aurora, Illinois 60507-2067 until 2:00 p.m., Wednesday, August 13, 2008 to determine proposals for the anticipated purchase of the above named project.

DO NOT SEND OR DELIVER PROPOSALS to the Purchasing Division Office.

All bid proposals must be submitted on the request for proposal forms provided entitled "Request for Proposal for Network Data Wiring Closet Air Conditioning with HVAC Control and Monitoring".

Each bid proposal must be placed in an envelope, sealed, and clearly marked on the outside: "Request for Proposal for Network Data Wiring Closet Air Conditioning with HVAC Control and Monitoring".

All inquiries and/or questions pertaining to the provisions and specifications of the Request for Proposal package shall be directed to Mr. Bruce Lawrie, Purchasing Director or Mr. Christopher DeBolt, Central Services Maintenance Engineer (630)844-3618 during normal business hours.

A bid bond in the amount of 10% of the bid price is required with the bid presented. A 100% performance bond will be required from the successful bidder.

Sufficient proof of liability and workmen's compensation must be furnished to satisfy requirements of the City of Aurora.

When required by State Law, please be advised that all bids must comply with the Illinois Prevailing Wage Act and the Prevailing Rate of Hourly Wages in the City of Aurora where the work is to be performed is to be paid to all persons on the project.

The successful respondent shall comply with all codes, ordinances, rules, statutes, laws and regulations of the City of Aurora, State of Illinois as they apply to all Public Works construction projects.

A mandatory pre-bid walk-through meeting is scheduled for Wednesday, August 6, 2008, at 9:00 a.m. at the City of Aurora, 44 East Downer Place, 2nd Floor Council Chambers.

The City of Aurora reserves the right to reject any or all Bids, or parts thereof, and to waive any technicality, informality or irregularity in the Bids received, and to disregard all nonconforming or conditional Bids or counter-proposals and to hold the best Bids for ninety (90) days from the opening date set forth above. The City further reserves the right to award the Bid to the lowest responsible Bidder whose offer best responds in quality, fitness and capacity to the requirements of the proposed Work or usage and therefore is in the best interest of the City.

CITY OF AURORA

Bruce Lawrie

Bruce Lawrie
Purchasing Director

01. REQUIREMENTS OF BIDDER

The successful Bidder will be required to (a) enter into a fully signed contract in writing with the City of Aurora covering matters and things as are set forth in the Bid Package; (b) execute a bond necessary for surety acceptable to the City of Aurora in the amount of one hundred percent (100%) of the full contract price and to be conditioned for the faithful fulfillment of the contract for the payment of all labor and materials used in the Work and to include the protection of the City from all liens and damages arising out of the Work; (c) carry insurance acceptable to the City covering public liability, property damage and workers compensation; and (d) pay workers in accordance with the schedule of prevailing wages for Kane County attached hereto.

02. ACCEPTANCE OF BIDS

a. The City reserves the right to reject any and all Bids or parts thereof and to waive any technicalities and irregularities in the bidding and to disregard all nonconforming or conditional Bids or counter-proposals and to hold the Bid proposals for ninety (90) days from the opening date set forth above. Bidder agrees to accept a notice of award, if selected, based on the terms of this Bid in the event that a notification of award is received on or before expiration of the 90-day time period. The City reserves the right to cancel the Bid at any time, without liability for any loss, damage, cost or expense incurred or suffered by any Bidder as a result of that cancellation. Each Bidder is solely responsible for the risk and cost of preparing and submitting a Bid.

b. Although price is a major consideration, product quality, references, service, delivery time and past experience, if applicable, will also be considered. No Bid will be considered unless the Bidder shall furnish evidence satisfactory to the City that he has the necessary facilities, abilities, experience, equipment, and financial and physical resources available to fulfill the conditions of the contract and execute the Work should the contract be awarded to him. Bid documents which are not responsive to the requirements herein may not be considered by the City for an award of the contract.

The contract will be awarded to the lowest responsible Bidder. In determining the responsibility of any Bidder, the City may take into account other factors in addition to financial responsibility, such as past records of its or other entities transactions with the Bidder, experience, ability to work cooperatively with the City and its staff, adequacy of equipment, ability to complete performance within necessary time limits, and other pertinent considerations such as, but not limited to, reliability, reputation, competency, skill, efficiency, facilities and resources. The Bid will be awarded in the City's best interests based on these and other legally-allowable considerations. The City and its representatives and agents may make any investigations deemed necessary to determine the ability of the Bidder to perform the Work. The Bidder shall furnish any information and data requested by the City for this purpose. Prior to award, the Bidder may be required to attend a post-Bid meeting at the City's office or the Work site.

03. RECEIPT OF BIDS

a. It is suggested that respondents allow a minimum of four (4) days for delivery through U.S. mail, or Bids may be delivered to the Office of the City Clerk in person. Overnight courier is acceptable provided timely receipt of Bids. The Bidder assumes responsibility for late delivery of the mail. It is the sole responsibility of the Bidder to see that his Bid is received in the proper time.

b. Any Bid received by the Office of the City Clerk after 2:00 p.m. on Wednesday, August 13, 2008, shall be rejected.

c. All Bids must be submitted upon the blank forms attached herein with all blank spaces filled in and any alterations or erasures explained. Bids that contain any omissions, erasures, or alterations, or that contain any additions or omissions of items not called for in the Bid Package, or that contain irregularities of any kind, may be rejected as informal. Bids shall be in strict conformity with the Bid Package and any applicable Addenda. Only Bids which are made out upon the Contractor Bid Form will be considered. Partial or incomplete Bids will not be considered.

04. WITHDRAWAL OF BIDS

Bidders may not withdraw their Bid after the Bid opening without the approval of the Purchasing Director. Requests to withdraw a Bid must be in writing and properly signed. Bidders may, however, without prejudice, modify or withdraw its Bid by written request, provided that the request is received by the City Clerk prior to the scheduled Bid opening and at the address to which Bids were to be submitted. Following withdrawal or modification of its Bid, Bidder may submit a new Bid, provided it is received by the City Clerk prior to the bid due date. No Bid will be opened which is received after the time and date scheduled for the Bids to be received.

05. BID DEPOSIT

Each Bidder shall deposit with his Bid a Bid guarantee consisting of a bank draft, Bid bond, cashier's check, or certified check drawn on a good and solvent National or State Bank and payable to the order of the City, in an amount not less than 10 percent of the total amount of the Bid submitted, as a guaranty that in case the Bidder's Bid is accepted, the Bidder shall within one day after the date of such acceptance and notification thereof, deliver to the City a contract signed and executed by the contractor, proper insurance certificates and a Performance and Payment Bond in one hundred percent of the contract sum furnished by a responsible bonding company acceptable to and written upon forms prepared or approved by the City as security for payment of labor and materials and for the faithful performance of the contract and compliance with the provisions of law relating to the payment of prevailing rate of wages. All Bid deposits will be retained by the City until a Bid award is made, at which time the Bid deposit will be promptly returned to the unsuccessful Bidders. The Bid deposit of the successful Bidder will be retained until the equipment, goods or services have been received or completed and found to be in compliance with the specifications. Performance by the contractor shall

not be considered complete, until final Inspection and acceptance by the City of the contractor's Work. Final inspection shall occur within 30 days after the actual completion of the Work. Execution of the contract is contingent upon receipt of an acceptable Performance and Payment Bond and any required certificates of insurance. Upon failure to meet the requirements of this paragraph, the Bidder shall forfeit the amount deposited as liquidated damages and no mistakes or errors on the part of the Bidder shall excuse the Bidder or entitle him to a return of the aforementioned amount.

06. BOND AND INSURANCE

The Bidder awarded the contract will be required to furnish a Performance Bond in the amount of one hundred percent (100%) of the full contract price, a Payment Bond, Public Liability Insurance, and Workers Compensation Insurance; all of which shall be acceptable to the City of Aurora.

07. CITY'S AGENT

The Purchasing Director, or his delegate, shall represent and act for the City in all matters pertaining to the Bid proposal and contract in conjunction thereto.

08. INVESTIGATION

It shall be the responsibility of the Bidders to make any and all investigations necessary to become thoroughly informed of what is required and specified in the Bid. No plea of ignorance by the Bidders of conditions that exist or may hereafter exist as a result of failure or omission on the part of the Bidder to make the necessary examinations and investigations will be accepted as a basis for varying the requirements of the City of the compensation to the Bidder.

Each Bidder submitting a Bid is responsible for examining the complete Bid Package and all Addenda, and is also responsible for informing itself of all conditions that might in any way effect the cost or the performance of any Work. Failure to do so will be at the sole risk of the Bidder, and no relief will be given for errors or omissions by the Bidder. It is the Bidder's responsibility to completely inspect premises prior to submitting Bids to determine all requirements associated with the Work. Failure to do so will in no way relieve the successful Bidder from the necessity of providing, without additional costs to the City, all necessary services that may be required to carry out the terms of the resulting contract. The Bidder must visit the Site of the proposed Work and fully inform himself as to the facilities involved, the difficulty and restrictions concerning the performance of the contract. No additional compensation will be authorized for a Bidder's failure to be fully informed of the existing conditions. If awarded the contract, the Bidder will not be allowed any extra compensation by reason of any matter or thing concerning which such Bidder should have fully informed himself, because of his failure to have so informed himself prior to the bidding. The submission of a Bid shall be construed as conclusive evidence that the Bidder has made such examination as is required in this section and that the Bidder is conversant with local facilities and difficulties, the requirements of the Bid Package documents, and of pertinent, local, state and federal laws and codes, prevailing local labor and material markets, and has made due allowance in its Bid for all contingencies.

Before any award is made of the contract to the contractor, the contractor may be required to, upon request of the City, furnish information concerning his performance record in his capacity to complete the Work in an efficient and timely manner.

09. BIDDER CAPABILITY

The City reserves the right to require of the Bidder proof of his/her capability to perform as required by the specifications. However, prequalification of the Bidder shall not be required.

10. ALTERNATE BIDS

The specifications are prepared to describe the goods and/or service which the City deemed to be in the best interest to meet its performance requirements. Bidders desiring to submit a Bid on items which deviate from the stated specifications, but which they believe to be equal, may do so, but all specification deviations must be clearly stated on the form provided in the Bid proposal package. The Purchasing Director reserves the right to rule upon specification deviation in a manner as best befits the needs of the City. If a Bidder wishes to submit more than one Bid, each Bid, after the first, is to be considered an alternate. THESE BIDS MUST BE PLACED IN SEPARATE ENVELOPES. THE ENVELOPE AND THE BID PROPOSAL PAGE MUST BE PLAINLY MARKED "ALTERNATE BID". The Purchasing Director will reject all deviations that amount to a material nonconformity with the specifications of the Bid.

11. BID AWARD

Except as otherwise may be stated in the Specifications, Bid award shall be made to the lowest responsible Bidder meeting the requirements and/or intent of the specifications at the net delivered price(s) shown and best responding to the needs of the City, in the City's sole discretion. However, if the Bidder modifies, limits, restricts or subjects his Bid proposal to conditions that would change the requirements of the specifications, this would be considered a conditional or qualified Bid proposal and will not be accepted. The City reserves the right to delete any Bid item listed in the Bid.

12. PRICES

a. Unit prices shall be shown for each unit on which there is a Bid, and shall include all packing, crating, freight and shipping charges to destination unless otherwise stated in the Bid proposal.

b. Unit prices shall not include any local, state or federal taxes In case of mistake in extension of price, unit price shall govern. All prices must be typewritten or written in black ink. (The party signing the Bid or his authorized representative must initial any alteration in ink.)

13. DISCOUNTS

Cash discounts for payment within thirty (30) days or more may be considered in awarding the Bid. Discounts of less than thirty (30) days will not be considered in the Bid evaluation. Where the net Bid is equal to a Bid with the cash discount deducted, the award shall be made to the net Bid. Discounts will be figured from the date of receipt of a proper invoice.

14. TRADES

Whenever vehicles and/or equipment are offered for trade, if, in the opinion of the City, the price(s) offered is considered by the City to be too low, the City reserves the right to withdraw all or any one of aid vehicles and/or equipment and adjust as the final Bid offer the difference.

15. TAXES

The City of Aurora is exempt, by law, from paying State and City Retailer's Occupation Tax, State Service Occupation Tax, State Use Tax and Federal Excise Tax upon City works and purchases. The City of Aurora's Sales Tax Exemption Number is E9996-0842-05.

16. DEFAULT

In case of default by successful Bidder, the City will procure articles or service from other sources and hold the contractor responsible for any excess cost incurred as provided for in Article 2 of the Uniform Commercial Code.

17. CANCELLATION

The City reserves the right to cancel the whole or any part of the contract if the contractor fails to perform any of the provisions in the contract or fails to make delivery within the time stated. The contractor will not be liable to perform if situations arise by reason of strikes, acts of God or public enemy, acts of the City, fires or floods.

18. SIGNATURES

Each Bid must be signed by the Bidder with his/her usual signature. Bids by partnerships must be signed with the partnership name by all members of the partnership, or an authorized representative, followed by the signature and title of the person signing. Bids by corporations must be signed with the name of the corporation, followed by the signature and title of the person authorized to bind it in the matter. All signatures must be in ink.

When a corporation submits a Bid, its agent must present legal evidence that he has lawful authority to sign said Bid and that the corporation has a legal existence. In the event that any corporation organized and doing business under the laws of any foreign state is the successful Bidder, such corporation must present evidence before any contract is executed that it is authorized to do business in the State of Illinois. Bids by corporations must be executed in the corporate name by the President or a Vice President (or other corporate officer accompanied by evidence of authority to sign), and the signature must be attested by the Secretary or an Assistant Secretary, and the corporate seal must be affixed. The corporate address and state of incorporation must be shown below the signature. Bids by partnerships must be executed in the partnership name and signed by a partner whose title must appear under the signature, and the official address of the partnership must be shown below the signature. Any corrections to entries made on the Bid forms shall be initialed by the person signing the Bid. When requested by the City, satisfactory evidence of the authority of any signature on behalf of the Bidder shall be furnished.

19. SPECIAL CONDITIONS

Wherever special conditions are written into the Special Conditions and Specifications which are in conflict with conditions stated in these Instructions to Bidders, the conditions stated in Special Conditions and Specifications shall take precedence.

20. PERMITS AND LICENSES

The successful Bidder shall obtain, at its own expense, all permits and licenses which may be required to complete the contract.

21. PATENTS

The successful Bidder agrees to indemnify, protect, defend, and save the City of Aurora and its officers and employees, harmless against any demand for payment for the use of any patented material process, article, or device that may enter into the manufacture, construction, presentation or form a part of the Work covered by the contract.

22. SAMPLES

Samples of items, when required, must be submitted within the time specified and at no expense to the City; and if not destroyed in testing, they will be returned at the Bidder's request and expense. Samples which are not requested for return within thirty (30) days will become the property of the City.

23. DEMONSTRATIONS

Bidders are required, if requested to do so, to effect a demonstration of the item(s) being Bid if the City feels it has insufficient knowledge of the item's operations or performance capability. Such demonstration must be at a site which is most convenient and agreeable to the effected City personnel.

24. REFERENCES

Sufficient references of all like public and/or private agencies must be presented on a separate sheet and attached to this Bid. Listing must include company name, contact person, telephone number and date purchased.

All Bidders, as a condition of and prior to entry into a contract, agree that a complete background investigation of the principals of the Bidder and all employees who will work on the project may be made. Bidders agree to cooperate with the appropriate City of Aurora personnel to supply all information necessary to complete these investigations. The City of Aurora in its complete discretion may disqualify any Bidder, including low Bidder, and may void any contract previously entered into based on its background investigation.

25. DATA

Complete and detailed brochures and specifications for vehicles equipment, materials, goods, supplies and/or services to be furnished must be included with each Bid.

26. SEQUENCE

The Contractor Bid form(s) shall be the top (1st) sheet(s) of the Bid proposal package returned to the City for consideration. All other sheets and/or documentation shall follow.

27. COMPLIANCE WITH LAWS AND REGULATIONS

The Bidder shall at all times observe and comply with all Federal, State, Municipal and other local laws, ordinances, regulations, and requirements which in any manner affect the conduct of the Work, and with all Federal, State and local laws and policies of non-discrimination, sexual harassment, prevailing wages and others applicable thereto; and all such orders or decrees as exist at the present and which may be enacted later, of bodies or tribunals having jurisdiction or authority over the Work, and no plea of misunderstanding or ignorance thereof will be considered. He shall indemnify and save harmless the City and all its officers, agents, employees and servants against any requirement, claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by himself or his employees. All Bidders must supply a certificate of eligibility to enter into public contracts.

28. PATENTED DEVICES, MATERIALS, AND PROCESSES

It is mutually understood and agreed that without exception contract prices are to include all royalties and costs arising in the Work. It is the intent that whenever the Bidder is required or desires to use any design, device, material, or process covered by letters or patent or copyright, the right of such use shall be provided for by suitable legal agreement with the patent owner. The Bidder in all cases shall indemnify and save harmless the City from any and all claims for infringement by reason of the use of any such patent design, device, materials, or process, to be performed or used under the contract, and shall indemnify and save harmless the said City for any costs, expenses, attorney's fees, and damages which it may be obligated to pay, by reason of any such infringement at any time during the prosecution or after the completion of the Work.

29. PROTECTION AND RESTORATION OF PROPERTY

It is understood that in the execution of the Work herein provided for there may be interference with and/or damage to trees, shrubbery, crops, fences, railroad tracks, overhead structures such as poles, wires, cables, underground structures such as sewers, gas mains, telephone conduits and cables, water mains, drains, service connections, wires, pipes, conduits, located along, adjacent to, and/or crossing the locations of the Work, and that it may be necessary to relocate or reconstruct certain of such structures, improvements, and installations and/or to make repairs to the same by reasons of doing the Work herein provided for, and it is therefore particularly and specifically agreed that the Bidder except as otherwise herein provided, shall do the Work necessary for such relocation, reconstruction, and repair and shall bear and pay all of the cost and expense of such relocation, reconstruction, and/or repair of, and all damage done to any and all such pipe line and other structures, improvements, and installations, including service connections, if any, to adjacent property, existing at the date of the execution of the contract and/or existing, during the period of the Work to be done under the contract,

which may be interfered with, damaged, and/or necessarily relocated, reconstructed, or repaired in the performance of the Work herein provided for, including the restoration and resurfacing of unpaved portions of public streets and alleys, rights-of-way, easements, and private property damaged or disturbed by the Work, the same to be restored to as good condition as the same existed at the time of the commencement of any such Work or relocation.

It is further agreed that the owners of any structures, improvements, installations, referred to in the preceding paragraph shall have the right to do the Work or any part thereof necessary for the relocation, reconstruction, replacement, repair, and other Work required by reason of any interference with and/or damage to such structures, improvements, installations, due to the prosecution of the Work and upon completion of such Work by them done, said owners may render bills to the Bidder for the cost and expenses thereof which bills shall be paid by the Bidder without extra compensation therefore from the City, upon demand by said owners, or upon demand made by the City upon the Bidder for the payment thereof.

30. RESPONSIBILITY FOR DAMAGE CLAIMS

The successful Bidder shall provide all insurance necessary to protect and save harmless the City of Aurora and its employees. Said insurance shall include contractual liability equal to the following indemnification and hold harmless agreement:

"The Bidder agrees to indemnify and save harmless the City of Aurora, their agents and employees from and against all loss and expenses (including costs and attorneys' fees) by reason of liability imposed by law upon the City of Aurora for damages because of bodily injury, including death, at any time resulting there from sustained by any person or persons or on account of damage to property, including loss of use thereof, arising out of or in consequence of the performance of this Work, whether such injuries to persons or damage to property be due to the negligence of the Bidder or his Subcontractors."

The Bidder agrees to purchase a policy of insurance which shall include the City of Aurora as an additional insured or provide separate coverage for the City with an owner's protective policy. The minimum amounts of insurance shall be as follows, except that no restrictions on occurrence limits will be permitted:

Bodily Injury Liability	Property Damage Liability	
Each Occurrence	Each Occurrence	Aggregate
$3,000,000	$500,000	$3,000,000

When high voltage electrical Work is included in the scope of the project, the following minimum insurance requirements shall apply:

Bodily Injury Liability	Property Damage Liability	
Each Occurrence	Each Occurrence	Aggregate
$3,000,000	$500,000	$5,000,000

All such insurance must include an endorsement whereby the insurer agrees to notify the Department at least thirty (30) days prior to non-renewal, reduction or cancellation. The Bidder shall cease operations on the project if the insurance is canceled or reduced below the required amount of coverage. All costs for insurance as specified herein will not be paid for separately, but shall be considered as incidental to the contract.

31. WORKERS COMPENSATION ACT

The Bidder further agrees to insure his employees and their beneficiaries and to the employees and the beneficiaries of any subcontractor employed from time to time by him on said Work, the necessary first-aid, medical, surgical, and hospital services and any compensation provided for in the Workers Compensation Act of the State of Illinois that is or may be in force in the State.

Such insurance shall be placed by said Bidder in a company or association (to be approved by the City and to be accepted by the Council thereof) authorized under the laws of the State of Illinois to insure the liability above specified.

Said Bidder hereby further agrees to indemnify, keep and save harmless said City from all action, proceedings, claims, judgments, awards, and costs, loss, damages, expenses, and attorney's fees which may in any way come against said City by reason of any accidental injuries or death suffered by any of his employees or the employees of any subcontractor employed by him in and about the performance of the Work provided for in the contract, and any and all liability resulting thereupon; and said Bidder, in case of any suit, action, or proceeding on account of any or all of the foregoing shall defend the same for and on behalf of said City and indemnify the City therefore, and pay the amount of any and all awards and final judgments and orders rendered and entered therein, together with all loss, costs, damages, attorney's fees, and expenses incurred therein. Said Bidder shall be the sole employer of its employees and workers, and in no way so shall the City be considered a joint employer of same under any circumstance.

32. SUBLETTING OR ASSIGNMENT OF WORK

If the Bidder sublets the whole or any part of the Work to be done under the contract, with or without the written consent of the City, he shall not, under any circumstances, be relieved of his liabilities and obligations. All transactions of the Engineer shall be with the Bidder; subcontractors shall be recognized only in the capacity of employees or workmen and shall be subject to the same requirements as to character and competence. In case any party or parties, to whom any work under the contract shall have been sublet, shall disregard the directions of the Engineer or his duly authorized representatives, or shall furnish any unsatisfactory Work or shall fail or refuse in any way to conform to any of the provisions or conditions of the contract, then in that case, upon the written order of the Engineer, the Bidder shall require said party or parties in default to discontinue Work under the contract. Said Work shall be corrected or made good and shall be continued and completed by the said Bidder or by such other party or parties as are approved by the Engineer, in the manner and subject to all of the requirements specified in the contract.

33. PROSECUTION OF WORK

The Work shall be conducted in such a manner and with sufficient materials, equipment and labor as is considered necessary to insure its completion within the time specified in the contract. The Bidder shall solely be fully responsible for complying with State and local prevailing wage requirements in accordance with the Bidders Certification, and for all wage rate and hour regulations and applications.

34. GUARANTEE AND MAINTENANCE OF WORK

The Bidder shall guarantee the Work to be free from defects of any nature for a period of one year from and after the final acceptance and payment for the Work by the City, and the Bidder shall maintain said Work and shall make all needed repairs and/or replacements during this one year period which in the judgment of the Council, may be necessary to insure the delivery of the Work to the City in first-class condition and in full conformity with the plans and specifications therefore, at the expiration of the guarantee period.

35. CONTRACT

The successful Bidder will be required to execute a contract in the form attached hereto (as may be modified and amended by the City) within one (1) day after notice of award and receipt of the contract from the City and sign and deliver to the City all required copies of the contract. Failure on the part of the contractor to execute the contract within one (1) day and provide the required evidence of insurance at, or before the execution of the contract, will be considered just cause for the annulment of the award of the Bid.

36. INSURANCE CERTIFICATES

At, or prior to, delivery of the signed contract, the successful Bidder shall deliver to the City the policies of insurance or insurance certificates as required by the contract Documents. All policies or certificates of insurance shall be approved by the City before the successful Bidder may proceed with the Work. Execution of the contract by the City is contingent upon receipt of the insurance policies or certificates. Failure to provide the evidence of insurance in the time provided for will result in disqualification and the Bid will be awarded to the next lowest Bidder or in the creation of a new Bid.

37. PERSONNEL AND EQUIPMENT

The contractor shall provide an adequate number of competently trained personnel with sufficient supervision to provide the services required, and contractor shall provide identification of its personnel if requested by the City.

Any contractor’s employee whose employment is reasonably detrimental or objectionable to the City shall be immediately transferred from the premises upon the City’s request. The exercise of the option shall not be construed as placing the City in charge of the Work or making the City responsible for safety.

All on the road vehicles or equipment shall be identified by the contractor's name for purpose of identification.

All tools or equipment required to carry out the operations within the scope of the contract shall be provided by the contractor, and shall meet the standards of the Federal Occupational Safety and Health Act and State of Illinois safety codes as may be required by law. The City reserves the right to inspect the equipment that will be used prior to award of Bid.

38. TIME

Time is of the essence of this contract. Bidder shall schedule its Work and that of its subcontractors to meet the requirement of the City. Bidder shall perform the Work expeditiously in cooperation with the City's agents, employees, contractors and subcontractors. Bidder shall make no claim against City and no claim shall be allowed for any damages which may arise out of any delay caused by City, its agents, employees, contractor or subcontractors. Bidder's sole remedy for delay shall be an extension in the contract time.

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PART 1 - GENERAL

1.1 OVERVIEW

This document contains the specification and input/output summaries for a Building Automation System (BAS) for:

NETWORK DATA WIRING CLOSET
AIR CONDITIONING WITH
HVAC CONTROL AND MONITORING

The system shall provide the Direct Digital Control (DDC), Energy Management and Building Automation System (BAS) for the air conditioning, heating and ventilating systems and shall interface with other microprocessor based building subsystems as shown on the drawings and as specified.

1.2 INSTRUCTIONS TO BIDDERS

The air conditioning system specified in this document will be Mitsubishi Mr. Slim Split-Ductless: PK Series Wall-mounted Air Conditioning Units, with Low Ambient Wind Baffle.

Model Numbers:
Indoor Unit: PKA-A12GAL
Outdoor Unit: PUY-A12NHA

Bid shall include all necessary electrical work.

The BAS system specified in this document shall be Metasys® System Extended Architecture, manufactured by Johnson Controls Inc.

Network Control Engine(s) shall be used for web browser access described in this specification and the attached I/O Points Schedule. The MS-NCE2511-0 shall be mounted in a prewired, preassembled standard 16 in. x 20 in control panel.

Alternate and/or substitute controllers / systems are not acceptable.

1.3 SCOPE OF WORK

A. Contractor's Responsibilities

The Contractor shall furnish and install all necessary software and hardware, wiring (including electrical), and computing equipment in compliance with this specification to monitor and control each data closet air conditioning unit at each site. Any variances from this specification will not be accepted.

B. System Requirements

1. **Standard Material/Products.** All material and equipment used shall be standard components, regularly manufactured and available and not custom designed especially for this project

2. **Modular Design.** The system architecture shall be fully modular permitting expansion of application software, system peripherals, and field hardware.

3. **Performance.** The system, upon completion of the installation and prior to acceptance of the project, shall perform all operating functions as detailed in this specification.

C. Equipment

1. System Hardware

   The Contractor shall provide the following:

   a. All sensing devices, relays, switches, indicating devices, and transducers required to perform the functions as listed in I/O Summary Tables.
   b. All monitoring and control wiring and air tubing.

2. **System Software**

   a. The Controls Contractor shall provide all software necessary for user operation.
   b. The Controls Contractor shall provide all software backups to authorized City of Aurora Rep.

D. Input/Output Point Summary Schedule

The system as specified shall monitor, control, and calculate all of the points and perform all the functions as listed in I/O Point Summary Schedule.

E. Codes and Regulations

1. **Standards Authority.** All electrical equipment and material, and its installation, shall conform to the current requirements of the following authorities:

   a. Occupational Safety and Health Act (OSHA)
   b. National Electric Code (NEC)
   c. National Fire Code
   d. Uniform Mechanical Code
   e. Uniform Building Code
   f. Uniform Plumbing Code

2. **Product Applicable Standards.** All distributed, standalone and unitary controllers supplied shall be in compliance with the following listings and standards:

   a. UL916 for Open Energy Management (for U.S. and Canada)
   b. FCC Part 15, Sub-Part B, Class A
   c. CE Electro Magnetic Compatibility
   d. **<UUKL Optional: Only for Smoke Evacuation and where specified elsewhere>**

3. **Manufacturer's Quality System.** The control system manufacturer shall be ISO certified listed for design and manufacture of environmental control systems for precise control and comfort, indoor air quality, HVAC plant operation, energy savings and preventative maintenance. ISO Certification shall be by a registrar that is accredited by an internationally recognized organization such as BSI (British Standards Institute).

4. **Conflict of Codes.** Where two or more codes conflict, the most restrictive shall apply. Nothing in this specification or related documentation shall be construed to permit work not conforming to applicable codes.

1.4 GENERAL CONDITIONS

A. Changes in Scope of Work

Any changes in the scope of work must be authorized by a written Change Order, and issued by **City of Aurora Authorized Representative,** in accordance with Contract conditions.

B. Correction of Work

1. **Contractor's Responsibility.** The Contractor shall promptly correct all work **City of Aurora Authorized Rep** finds defective or failing to conform to the Contract Documents. The Contractor shall bear all cost of correcting such work.
2. **During Warranty.** If, within the warranty period required by the Contract Documents, any of the work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from **City Of Aurora Authorized Rep** to do so. **City Of Aurora Authorized Rep** shall give notice promptly after discovery of the condition.

C. Coordination of Work During Construction

1. The Contractor shall coordinate any necessary changes in work scheduling with **City Of Aurora Authorized Rep** to minimize disruption.
    a. The Contractor shall protect the installed works by other trades.
    b. The Contractor shall coordinate with other trades.
    c. The Contractor shall repair any damage caused by his work to building(s) and equipment at no additional cost to the owner.

D. Warranty

The Contractor shall warrant, from the date of final acceptance by **City Of Aurora Authorized Rep,** which all systems, subsystems, component parts, and software are fully free from defective design, materials, and workmanship for a period of one year or longer as indicated in this specification.

1.5 SUBMITTALS, DOCUMENTATION, ACCEPTANCE AND TRAINING

A. Submittals

1. **As Built Drawings.** The Contractor shall deliver 2 sets of 'as-built' drawings after the final system checkout and updated or corrected to provide 'as-built' drawings to show exact installation. The system will not be considered complete until the 'as-built' drawings have received their final approval.

B. Documentation

Operating and Maintenance (O&M) manuals for the system shall be made available electronically and include the following categories: Workstation User's Manual, Project Engineering Handbook, and Software Documentation.

1. **BAS User's Manual** shall contain as a minimum:

    a. System overview
    b. Networking concepts
    c. Launching a web browser from a networked PC and login
    d. Web Browser Graphical User Interface (GUI) screen menus and their definitions
    e. Creating, modifying or deleting schedules
    f. Uploading and downloading software to the field hardware
    g. Creating historical trends, collecting trend data and generating trend graphs
    h. Enabling and assigning alarms and messages to reporting actions/groups
    i. Report generation and 'third party software'
    j. Backing up software and data files

2. **Project Engineering Manual** for **BAS replacement** shall contain as a minimum:

    a. System architecture overview and networking configuration
    b. Hardware cut-sheets and product descriptions
    c. The Contractor shall deliver **2** sets of 'as-built' drawings. All drawings shall be reviewed after the final system checkout and updated to provide 'as-built' drawings. The system will not be considered complete until the 'as-built' drawings have received their final approval.
    d. Installation, mounting and connection details for all field hardware and accessories
    e. Commissioning, setup and backup procedures for all control modules/ accessories and database.
    f. Listing of basic terminology, alarms/messages, error messages and frequently used commands or shortcuts.

3. **BAS Software Documentation** shall contain as a minimum:

    a. The Contractor shall provide all HVAC equipment and electrical/mechanical subsystems hierarchy. Revisions made as a result of the submittal process, during the installation, start-up or acceptance portion of the project, shall be accurately reflected in the "as-builts".
    b. Representation of the mechanical equipment hierarchy for the project including all equipment controlled by the BAS. For example: a VAV terminal box may be the source for increased cooling demand and require the primary VAV AHU to operate which, in turn, requires the chillers to operate.
    c. Detailed listing of all alarm and event messages programmed for designated mechanical/electrical equipment and required operator action.

C. Acceptance Test

1. **Acceptance Testing.** Upon completion of the installation, the Contractor shall start up the system and perform all necessary calibration, testing, and debugging operations. The Contractor in the presence of the Owner's representative shall perform an acceptance test.

2. **Notice of Completion.** When the system performance is deemed satisfactory, the system parts will be accepted for beneficial use and placed under warranty. At this time, **City Of Aurora Authorized Rep** shall issue a "notice of completion" and the warranty period shall start.

D. System Training

1. **System Use Instructions:** Controls Contractor shall provide full Software Operations Manual in addition to training of designated personnel in the operation, maintenance, and programming of the system.

PART 2 – NCE & WEB BROWSER GUI

2.1 SYSTEM OVERVIEW

The BAS contractor shall provide system software based on Metasys extended architecture, designed around the open standards of web technology. The NCE shall communicate using N2 protocol. NCE shall be accessed using a web browser over **City Of Aurora** intranet.

The intent of the Metasys extended architecture is to provide the operator(s) complete access to the BAS system via a web browser. The NCE web browser User Interface (UI) shall be browser and operating system agnostic, meaning it will support Microsoft browsers (6.0 or later versions), and Windows. No special software other than java clients shall be required to be installed on the PC's / PDA's used to access the BAS via a web browser.

The NCE software shall be developed and tested by the manufacturer of the system standalone controllers and network controllers/routers. Third party manufactured and developed BAS software is not acceptable.

The web browser UI shall provide a completely interactive user interface and must offer the following features as a minimum:

- Trending
- Scheduling
- Downloading Memory to field devices
- Real time 'live' Field Data
- Tree Navigation
- Parameter change of properties
- Setpoint Adjustments
- Alarm / Event information
- Configuration of operators
- Execution of global commands

A. Software Components

All software components of the BAS system software shall be installed and completed in accordance with the specification. BAS system components if necessary shall include:

1. SCT Software, Database and Web Browser Graphical User Interface
2. System Configuration Utilities for future modifications to the system
3. Graphical Programming Tools
4. Direct Digital Control software
5. CCT Software

B. NCE Database

The NCE software database shall utilize I/O summary.

C. Communication Protocol(s)

The native protocol for the NCE software shall utilize the N2 protocol for expansion of field controllers.

- **IMPORTANT NOTE:** ALL I/O points listed in the I/O Point Summary shall be configured through the SCT software. A copy of SCT database shall be supplied to **City Of Aurora Authorized Rep.**

D. Cross Platform Capability

The BAS system software (client and server) shall be operating system and hardware agnostic, being able to run on Windows 2000, Windows NT, and Windows XP.

E. Extended Architecture– Web Browser Based

The UI shall be browser based and shall meet the following criteria:

1. **Web Browser's for PC's:** Only a 6.0 or later browser Internet Explorer will be required as the UI, and a valid connection to the server network. No installation of any custom software shall be required on the operator's UI workstation/client. Connection shall be over City Of Aurora intranet.

2.2 WEB BROWSER GRAPHICAL USER INTERFACE

A. Web Browser Navigation

The Extended Architecture web browser UI shall provide a comprehensive user interface. Using a collection of web pages, it shall be constructed to "feel" like a single application, and provide a complete and intuitive mouse/menu driven operator interface. It shall be possible to navigate through the system using a web browser to accomplish 2.2 B thru 2.2 J of this specification. The Web Browser UI shall (as a minimum) provide a Navigation Pane for navigation, and a Action Pane for display of animated graphics, schedules, alarms/events, live graphic programs, active graphic setpoint controls, configuration menus for operator access, reports, and reporting actions for events.

B. Login

On launching the web browser and selecting the appropriate NCE name or IP address, the operator shall be presented with a login page that will require a login name and password. Navigation in the system shall be dependent on the operator's role privileges.

C. Navigation Pane

The Navigation Pane shall comprise a Navigation Tree which defines a geographic hierarchy of **City Of Aurora** BAS system. Navigation through the UI shall be accomplished by clicking on appropriate level of a navigation tree (consisting of expandable and collapsible tree control like Microsoft's Explorer program), and/or by selecting dynamic links to other system graphics. Both the navigation tree and action pane defined in 2.2 D shall be displayed simultaneously, enabling the operator to select a specific system or equipment, and view the corresponding graphic. The navigation tree shall as a minimum provide the following views: Geographic, Network, Groups and Configuration.

1. **Geographic View** shall display a logical geographic hierarchy of the system including: buildings, building systems, floors, equipment and BAS objects.
2. **Network View** shall display the hierarchy of the actual BAS network. This can include: Systems, Site, Networks, Routers, Half-Routers, Devices, Equipment and all the BAS Objects in a device.
3. **Groups View** shall display System Groups and custom reports.
4. **Configuration View** shall display all the configuration categories (Operators, Schedule, Event, Reporting and Roles).

D. Action Pane

The Action Pane shall provide several functional views for each HVAC or mechanical/electrical subsystem specified. A functional view shall be accessed by clicking on the corresponding button:

1. **System:** Hierarchy shall include building views, building floor-plans, equipment drawings, active graphic setpoint controls, web content, and other valid HTML elements. The data on each graphic page shall automatically refresh.
2. **Properties**: Shall include graphic controls and text for the following: Locking or overriding BAS objects, demand strategies, and any other valid data required for setup.
3. **Schedules**: Shall be used to create, modify/edit and view schedules based on the systems hierarchy (using the navigation tree) and in compliance with section 2.2.G
4. **Events:** Shall be used to view alarm event information geographically (using the navigation tree), acknowledge events, sort events by category, actions and verify reporting actions.
5. **Trends:** Shall be used to display associated trend and historical data, modify colors, date range, axis and scaling
6. **Logic - Live Programs:** Shall be used to display 'live' programs of the control algorithm for the mechanical/electrical system selected in the navigation tree.

E. Color Graphics (Optional)

The Web Browser UI shall make extensive use of color in the graphic pane to communicate information related to setpoints and comfort. Animated .gif's or .jpg, active setpoint graphic controls shall be used to enhance usability. Graphics tools used to create Web Browser graphics shall be non-proprietary and conform to the following basic criteria:

1. **Display Size:** The UI workstation software shall graphically display in 1024 by 768 pixels 24 bit True Color.
2. **General Graphic:** General area maps shall show locations of controlled buildings in relation to local landmarks.
3. **Color Floor Plans:** Floor plan graphics shall show heating and cooling zones throughout the buildings in a range of colors, which provide a visual display of temperature relative to their respective setpoints (see section 3.2 F below). The colors shall be updated dynamically as a zone's actual comfort condition changes.

4. **Mechanical Components:** Mechanical system graphics shall show the type of mechanical system components serving any zone through the use of a pictorial representation of components. Selected I/O points being controlled or monitored for each piece of equipment shall be displayed with the appropriate engineering units. Animation shall be used for rotation or moving mechanical components to enhance usability.

5. **Minimum System Color Graphics:** Color graphics shall be selected and displayed via a web browser for the following:

   a. Each piece of equipment monitored or controlled including each terminal unit
   b. Each building
   c. Each floor and zone controlled

F. Zone Setpoint Adjustments

Color floor plans displayed via a web browser shall utilize a contiguous band of colors, each corresponding to actual zone temperatures relative to the desired heating and cooling setpoints. The ideal temperature shall be shown as a green color band. Temperatures slightly warmer than ideal shall be shown in yellow, and even warmer temperature band shall be shown in orange. Temperatures slightly cooler than ideal shall be light blue, and even cooler temperatures shall be shown as dark blue. All alarm colors shall be in red.

1. **Active Zone Setpoint Controls:** Utilizing a mouse, it shall be possible to select occupied or unoccupied setpoints (corresponding to the floor plan colors) and drag the color slide bar(s) to increase or decrease heating and cooling setpoints. In addition to the slide bars, an operator may type the numeric value of the heating and cooling setpoints.

G. Hierarchical Schedules

Utilizing the Navigation Tree displayed in the web browser UI, an operator (with password access) shall be able to define a Normal, Holiday or Override schedule for an individual piece of equipment or room, or choose to apply a hierarchical schedule to the entire system, site or floor area. For example, Independence Day 'Holiday' for every level in the system would be created by clicking at the top of the geographic hierarchy defined in the Navigation Tree. No further operator intervention would be required and every control module in the system with would be automatically downloaded with the 'Independence Day' Holiday.

All schedules that affect the system/area/equipment highlighted in the Navigation Tree shall be shown in a summary schedule table and graph.

1. **BAS Schedules:** Schedules shall comply with the Schedule Object, Calendar Object, Weekly Schedule property and Exception Schedule property and shall allow events to be scheduled based on:

   a. Types of schedule shall be Normal, Holiday or Override
   b. A specific date,
   c. A range of dates,
   d. Any combination of Month of Year (1-12, any), Week of Month (1-5, last, any), Day of Week (M-Sun, Any)
   e. Wildcard (example, allow combinations like second Tuesday of every month).

2. **Schedule Categories:** The system shall allow operators to define and edit scheduling categories (different types of "things" to be scheduled; for example, lighting, HVAC occupancy, etc.). The categories shall include: name, description, icon (to display in the hierarchy tree when icon option is selected) and type of value to be scheduled.

3. **Schedule Groups:** In addition to hierarchical scheduling, operators shall be able to define functional Schedule Groups, comprised of an arbitrary group of areas/rooms/equipment scattered throughout the facility and site. For example, the operator shall be able to define an 'individual tenant' group – who may occupy different areas within a building or buildings. Schedules applied to the 'tenant group' shall automatically be downloaded to control modules affecting spaces occupied by the 'tenant group'

4. **Intelligent Scheduling:** The control system shall be intelligent enough to automatically turn on any supporting equipment needed to control the environment in an occupied space. If the operator schedules an individual room in a VAV system for occupancy, for example, the control logic shall automatically turn on the VAV air handling unit, chiller, boiler, and/or any other equipment required to maintain the specified comfort and environmental conditions within the room.

5. **Partial Day Exceptions:** Schedule events shall be able to accommodate a time range specified by the operator (ex: board meeting from 6 pm to 9 pm overrides Normal schedule for conference room).

6. **Schedule Summary Graph:** The schedule summary graph shall clearly show Normal versus Holiday versus Override Schedules, and the net operating schedule that results from all contributing schedules. Note: In case of priority conflict between schedules at the different geographic hierarchy, the schedule for the more detailed geographic level shall apply.

7. **Schedule Distribution:** For reliability and performance, instead of maintaining a single schedule in a field device that writes over the network to notify other devices when a scheduled event occurs, field devices will only keep their part of the schedule locally. The NCE software shall determine which nodes a hierarchical schedule applies to and will create/modify the necessary schedule objects in each field device as necessary.

H. Events (& Alarms)

Events and alarms associated with a specific system, area, or equipment selected in the Navigation Tree, shall be displayed in the Action Pane by selecting an 'Events' view. Events, alarms, and reporting actions shall have the following capabilities:

1. **Events View:** Each event shall display an Event Category (using a different icon for each event category), date/time of occurrence, current status, and event report for the selected system, area or equipment. An operator shall easily be able to sort events, edit event templates and categories, acknowledge or force a return to normal in the Events View as specified in this section.

2. **Event Categories:** The operator shall be able to create, edit or delete event categories such as HVAC, Maintenance, Fire, or Generator.

3. **BAS Event Templates:** BAS Event template shall define different types of alarms and their associated properties. As a minimum, properties shall include a reference name, verbose description, severity of event, acknowledgement requirements, high/low limit and out of range information.

4. **Event Areas:** Event Areas enable an operator to assign specific Event Categories to specific Event Reporting Actions. For example, it shall be possible for an operator to assign all HVAC Maintenance events on the 1st floor of a building to email the technician responsible for maintenance. The Navigation Tree shall be used to setup Event Areas in the Graphic Pane.

5. **Event Time/Date Stamp:** All events shall be generated at the DDC control module level and comprise the Time/Date Stamp using the standalone control module time and date.

6. **Event Configuration:** Operators shall be able to define the type of events generated per BAS object. A 'network' view of the Navigation Tree shall expose all BAS objects and their respective Event Configuration. Configuration shall include assignment of event, alarm, type of Acknowledgement and notification for return to normal or fault status.

7. **Event Summary Counter:** The view of events in the Graphic Pane shall provide a numeric counter, indicating how many events are active (in alarm), require acknowledgement, and total number of events in the NCE database.

8. **Event Auto-Deletion:** Events that are acknowledged and closed shall be auto-deleted from the database and archived to a text file after an operator defined period.

9. **Event Reporting Actions:** Event Reporting Actions specified shall be automatically launched (under certain conditions) after an event is received by the NCE software. Operators shall be able to easily define these Reporting Actions using the Navigation Tree and Graphic Pane through the web browser GUI. Reporting Actions shall be as follows:

    a. **Print:** Alarm/Event information shall be printed to the NCE's PC or a networked printer as required.
    b. **Email:** Email shall be sent via any POP3-compatible e-mail server (most Internet Service Providers use POP3). Email messages may be copied to several email accounts as required.

Note: Email reporting action shall also be used to support alphanumeric paging services, where email servers support pagers.

I. Trends

Trends shall conform to the BAS Trend Log Object specification. Trends shall both be displayed and user configurable through the Web Browser GUI. Trends shall comprise analog, digital or calculated points simultaneously. A trend log's properties shall be editable using the Navigation Tree and Graphic Pane.

1. **Viewing Trends:** The operator shall have the ability to view trends by using the Navigation Tree and selecting a Trends button in the Graphic Pane. The system shall allow y- and x-axis maximum ranges to be specified and shall be able to simultaneously graphically display multiple trends per graph.

2. **Local Trends:** Trend data shall be collected locally by Multi-Equipment/Single Equipment general-purpose controllers, and periodically uploaded to the NCE if historical trending is enabled for the BAS object. Trend data, including run time hours and start time date shall be retained in non-volatile module memory. Systems that rely on a gateway/router to run trends are NOT acceptable.

3. **Resolution.** Sample intervals shall be as small as one second. Each trended point will have the ability to be trended at a different trend interval. When multiple points are selected for display that have different trend intervals, the system will automatically scale the axis.

4. **Dynamic Update.** Trends shall be able to dynamically update at operator-defined intervals.

5. **Zoom/Pan.** It shall be possible to zoom-in on a particular section of a trend for more detailed examination and 'pan through' historical data by simply scrolling the mouse.

6. **Numeric Value Display.** It shall be possible to pick any sample on a trend and have the numerical value displayed.

7. **Copy/Paste.** The operator must have the ability to pan through a historical trend and copy the data viewed to the clipboard using standard keystrokes (i.e. CTRL+C, CTRL+V).

J. Security Access

Systems that Security access from the web browser GUI to NCE shall require a Login Name and Password. Access to different areas of the BAS system shall be defined in terms of Roles, Privileges and geographic area of responsibility as specified:

1. **Roles:** Roles shall reflect the actual roles of different types of operators. Each role shall comprise a set of 'easily understood English language' privileges. Roles shall be defined in terms of View, Edit and Function Privileges.

    a. View Privileges shall comprise: Navigation, Network, and Configuration Trees, Operators, Roles and Privileges, Alarm/Event Template and Reporting Action.
    b. Edit Privileges shall comprise: Setpoint, Tuning and Logic, Manual Override, and Point Assignment Parameters.
    c. Function Privileges shall comprise: Alarm/Event Acknowledgement, Control Module Memory Download, Upload, Schedules, Schedule Groups, Manual Commands, Print, and Alarm/Event Maintenance.

2. **Geographic Assignment of Roles:** Roles shall be geographically assigned using a similar expandable/collapsible navigation tree. For example, it shall be possible to assign two HVAC Technicians with similar competencies (and the same operator defined HVAC Role) to different areas of the system.

2.3 GRAPHICAL PROGRAMMING

The system software shall include a Graphic Programming Language (GPL) for all DDC control algorithms resident in standalone control modules. All systems should be able to be in stand-alone mode if network communication is lost. No GPL should be used unless for Global sharing or interlock purposes. GPL is a method used to create a sequence of

operations by assembling graphic microblocks that represent each of the commands or functions necessary to complete a control sequence. Microblocks represent common logical control devices used in conventional control systems, such as relays, switches, high signal selectors, etc., in addition to the more complex DDC and energy management strategies such as PID loops and optimum start. Each microblock shall be interactive and contain the programming necessary to execute the function of the device it represents.

Graphic programming shall be performed while on screen and using a mouse; each microblock shall be selected from a microblock library and assembled with other microblocks necessary to complete the specified sequence. Microblocks are then interconnected on screen using graphic "wires," each forming a logical connection. Once assembled, each logical grouping of microblocks and their interconnecting wires then forms a graphic function block which may be used to control any piece of equipment with a similar point configuration and sequence of operation.

A. Graphic Sequence

The clarity of the graphic sequence must be such that the operator has the ability to verify that system programming meets the specifications, without having to learn or interpret a manufacturer's unique programming language. The graphic programming must be self-documenting and provide the operator with an understandable and exact representation of each sequence of operation.

B. Simulation

Full simulation capability shall be provided with the graphic programming. Operator shall be able to fully simulate the constructed control sequence prior to downloading into field control modules. Simulation capabilities shall include step-by-step, accelerated time, and operator defined simulation criteria like outside weather, demand, and communication status. Multiple graphic programs shall be simulated and displayed in split screens at the same time.

C. GPL Capabilities

The following is a minimum definition of the capabilities of the Graphic Programming software:

1. **Function Block (FB):** Shall be a collection of points, microblocks and wires which have been connected together for the specific purpose of controlling a piece of HVAC equipment or a single mechanical system.
2. **Logical I/O:** Input/Output points shall interface with the control modules in order to read various signals and/or values or to transmit signal or values to controlled devices.
3. **BAS Points:** Shall be points that comply with the BAS structure as defined in the BIBB's Addendum B1/B2, and the BAS standard.
4. **Microblocks:** Shall be software devices that are represented graphically and may be connected together to perform a specified sequence. A library of microblocks shall be submitted with the control contractors bid.
5. **Wires:** Shall be Graphical elements used to form logical connections between microblocks and between logical I/O. Different wires types shall be used depending on whether the signal they conduct is analog or digital.
6. **Labels:** Labels shall be similar to wires in that they are used to form logical connections between two points. Labels shall form a connection by reference

instead of a visual connection, i.e. two points labeled 'A' on a drawing are logically connected even though there is no wire between them.

7. **Parameter:** A parameter shall be a value that may be tied to the input of a microblock.
8. **Properties:** Dialog boxes shall appear after a microblock has been inserted which has editable parameters associated with it. Default parameter dialog boxes shall contain various editable and non-editable fields and shall contain 'push buttons' for the purpose of selecting default parameter settings.
9. **Icon:** An icon shall be graphic representation of a software program. Each graphic microblock has an icon associated with it that graphically describes it function.
10. **Menu-bar Icon:** Shall be an icon that is displayed on the menu bar on the GPL screen, which represents its associated graphic microblock.
11. **Live Graphical Programs:** The Graphic Programming software must support a 'live' mode, where all input/output data, calculated data, and setpoints shall be displayed in a 'live' real-time mode.

For each piece of HVAC equipment, the entire graphic program shall be displayed through the Web Browser GUI. The operator must have the ability to scroll through the entire 'live' graphic program as necessary. Piecemeal graphic programs that only show one part of HVAC equipment program at any one time are NOT acceptable. For example, when viewing an AHU live graphic program, the operator shall see the entire AHU graphic program, not just the Heating Coil control.

PART 3 - PRODUCTS HARDWARE

3.1 HARDWARE

A. NCE Configuration (Hardware Independent)

The BAS Contractor shall provide a Network Control Engine configuration that includes the following components as a minimum:

1. MS-NCE2511-0 for web access.

B. Field Controllers Configuration

The BAS Contractor shall provide a field controller configuration that includes the following components as a minimum:

1. MS-NCE2511-0 for each site.
2. N2 controllers only used for point expansion.

Note: No substitutes will be accepted.

C. Mitsubishi Air Conditioning Units

Air Conditioning Units must be Mitsubishi Mr. Slim Ductless Split System with Low Ambient Wind Baffle. Indoor unit model number PKA-A12GAL and Outdoor unit model PUY-A12NHA. Bid will include all necessary electrical work required for installation.

Note: No substitutes will be accepted.

PART 4 - SEQUENCES OF OPERATION

**USE EXISTING SEQUENCE OF OPERATIONS PER DATA CLOSET.

SECTION – A

I/O Point Summary Schedule and Verification Checks

I/O Points, Sensors and Controlled Devices

I/O POINT INSTALLED CHARACTERISTICS AND OPERATIONAL CHECKS:

For each piece of I/O Point, list in a table issues relating to scanning frequency, tolerance, reasonableness range and alarm criteria, and default values. Include any special instructions, specific criteria for acceptance and any notes of caution to the user.

Instructions:

Criteria for Acceptance:

Caution:

Results/Observations Table:

Party conducting test:
Time and date of test:
Current conditions:
_____
_____

Analog Inputs												
Name	Symbol/ Designation	Address/ Controller	Scanning frequency/ COV limit	Eng. units	Scale factor	Accuracy Tolerance	Range Low	Range High	Alarm Low	Alarm High	Alarm Priority	Default value
Zone Temp	ZN-T											
Discharge Air Temp	DA-T											

Analog Outputs									
Name	Symbol/ Designation	Address/ Controller	Scanning frequency	Engineering units	Scale factor	Accuracy Tolerance	Range Low	Range High	Connected to proper controlled device?

Digital Inputs									
Name	Symbol/ Designation	Address/ Controller	Scanning frequency	Message criteria	Alarm criteria	Message and/or alarms reporting	Report each change of state	Store time of last change of state	On-time Totalization (motorized equipment)
Supply Fan Status	SF-S								

Digital Outputs								
Name	Symbol/ Designation	Address/ Controller	Scanning frequency	Minimum off time	Minimum on time	Status associated with DI point or Alarm (as applicable)		Default value to be used when the normal controlling value is not reporting
Supply Fan Cmd	SF-C							
Compressor 1 Cmd	DX1-C							
Compressor 2 Cmd	DX2-C							

Comments, notes, deficiencies (add more sheets if needed):

COMMENT

____ _____

____ _____

____ _____

SENSORS AND CONTROLLED DEVICES INSTALLED CHARACTERISTICS CHECK:

Provide specific instructions. Specify relevant sensors, equipment and systems to be checked. Include specific measurable acceptance criteria and any notes of caution to the user. If required, specify measurement method including accuracy requirements for the measurement device used to verify sensor tolerance.

Instructions:

Criteria for Acceptance:

Caution:

Results/Observations Table:

Party conducting test:
Time and date of test:
Current conditions: _____ _____

Sensors:								
Name	**Symbol/ Designation**	**Correct sensor used?**	**Installed properly?**	**Point to point OK?**	**Reasonableness Range Min**	**Max**	**Required Tolerance**	**Through system calibration check OK?**

Actuators:							
Name	**Symbol/ Designation**	**Correct equipment used?**	**Installed properly?**	**Point to point OK?**	**Moves freely over the required range?**	**Range of Action Min**	**Max**

Valves:							
Name	**Symbol/ Designation**	**Correct equipment used?**	**Installed properly?**	**Point to point OK?**	**Moves freely over the required range?**	**Range of Action Min**	**Max**

Dampers:							
Name	**Symbol/ Designation**	**Correct equipment used?**	**Installed properly?**	**Point to point OK?**	**Moves freely over the required range?**	**Range of Action Min**	**Max**

Variable Frequency Drives:							
Name	**Symbol/ Designation**	**Correct equipment used?**	**Installed properly?**	**Point to point OK?**	**Ramp-Up Rate**	**Range of Action Min RPM**	**Max**

DDC I/O Points, Sensors and Controlled Devices

	Yes	No
4.1 All I/O point data is verified to be completed and programmed as specified, including setpoints.	_____	_____
4.2 All analog output devices are verified to be connected to their designated controlled device.	_____	_____
4.3 Field devices properly installed, i.e., current transducers, temperature and pressure sensors, temperature and velocity sensors, EP switches, EP transducers, damper and valve actuators, light switches, occupancy sensors, etc.	_____	_____
4.4 All sensors are verified to be within the required tolerances? (This calibration check is essential to the correct function of the DDC system.)	_____	_____
4.5 Manually command dampers and valves through the user interface and verify actuation. Do all actuators, valves and dampers move freely over their range?	_____	_____
4.6 Other operational checks	_____	_____

Comments, observations, notes, deficiencies (add more sheets if needed):

#	COMMENT
_____	_____
_____	_____
_____	_____
_____	_____

DDC System I/O Point installation has met all installed characteristics checks acceptance criteria.

___ YES ___ NO

Verifier's Signature: _____

MITSUBISHI ELECTRIC
HVAC Advanced Products Division

Mr.SLIM
Split-ductless A/C and Heat Pumps

SUBMITTAL DATA: PKA-A12GAL & PUY-A12NHA

12,000 Btu/h WALL-MOUNTED AIR-CONDITIONING SYSTEM

Job Name: Location: Date:

Purchaser: Engineer:

Submitted to: For ☐ Reference ☐ Approval ☐ Construction

Unit Designation: Schedule No.:

GENERAL FEATURES

- Limited warranty: one year on parts and defects and six years on compressor
- Compact side-discharge outdoor unit
- Zone control
- Wireless remote controller
- Automatic fan speed control
- Quiet operation – both, indoor and outdoor units
- Auto restart following a power outage
- Self check function
- Advanced microprocessor control

Rated capacity . . . . . 12,000 Btu/h
Minimum capacity . . . . . 6,000 Btu/h
Total input . . . . . 1210 W
SEER 13.8
Power supply . . . . . 208 / 230V, 1 Phase, 60 Hz
Breaker size . . . . . 15 A

Voltage
Indoor - outdoor S1-S2 . . . . . AC 208/230V
Indoor - outdoor S2-S3 . . . . . DC 24V
Indoor - remote controller . . . . . wired

Indoor unit
MCA . . . . . 1 A
Fan motor . . . . . 0.33 F.L.A.
Fan motor output . . . . . 30 W
Airflow (Lo-M1-M2-Hi) . . . . . 320-350-390-425 Dry CFM
290-315-350-380 Wet CFM
Sound level (Lo-M1-M2-Hi) . . . . . 36-38-41-43 dB(A)

DIMENSIONS		INCHES	MM
	W	39	990
	D	9-1/4	235
	H	13-3/8	340

Weight (lbs/kg) . . . . . 35 / 16
Field drain pipe size I.D. (inches/mm) . . . . . 3/4 / 19.05

Indoor Unit: PKA-A12GAL

Outdoor Unit: PUY-A12NHA

Outdoor unit
Compressor . . . . . DC inverter/twin rotary
MCA 13
Fan motor . . . . . 0.35 F.L.A.
Sound level . . . . . 46 dB(A)

DIMENSIONS		INCHES	MM
	W	31-1/2	800
	D	13 + 7/8	330 + 23
	H	23-5/8	600

Weight (lbs/Kg) . . . . . 90 / 41
Refrigerant type R410A
Refrigerant pipe size O.D. (inches/mm)
gas side . . . . . 1/2 / 12.7
liquid side . . . . . 1/4 / 6.35
Max. refrigerant pipe length (ft/m) . . . . . 100 / 30
Max. refrigerant pipe height difference (ft/m) . . . . 100 / 30
Connection method . . . . . flared

NOTES :
*1. Rating conditions (cooling)-indoor : D.B. 80°F, W.B. 67°F
outdoor : D.B. 95°F, W.B. 75°F.

Operating range

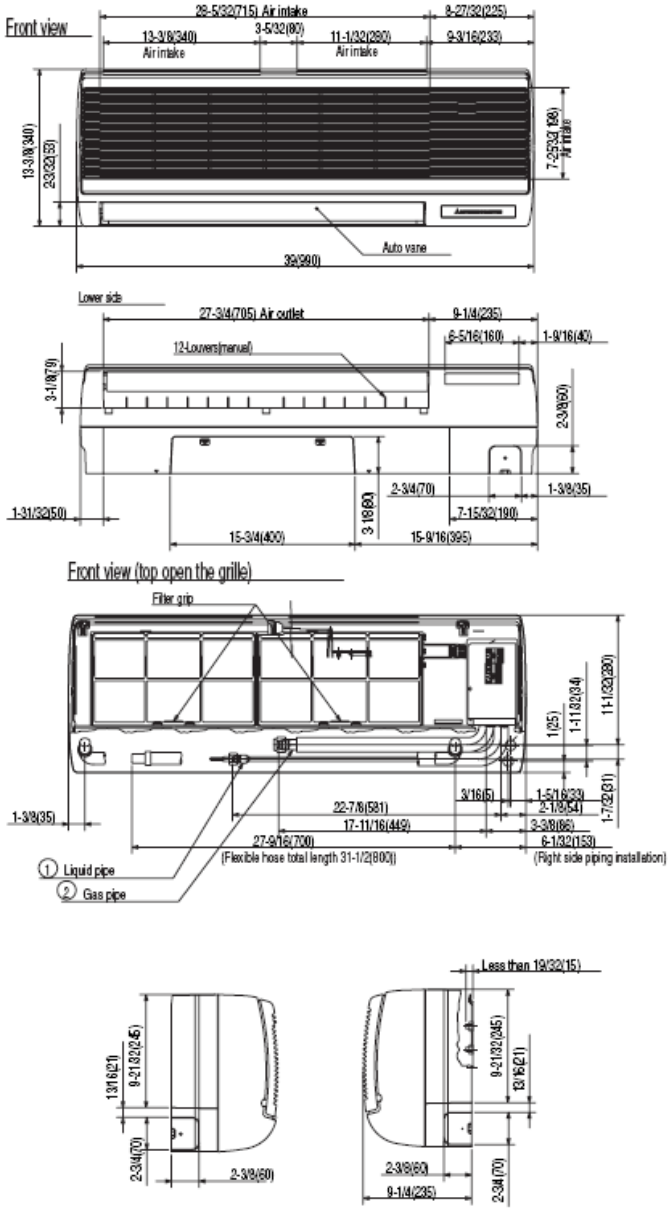
		Indoor intake air temp.	Outdoor intake air temp.
Cooling	Maximum	D.B. 95°F, W.B. 71°F	D.B. 115°F
	Minimum	D.B. 67°F, W.B. 57°F	D.B. 0°F *

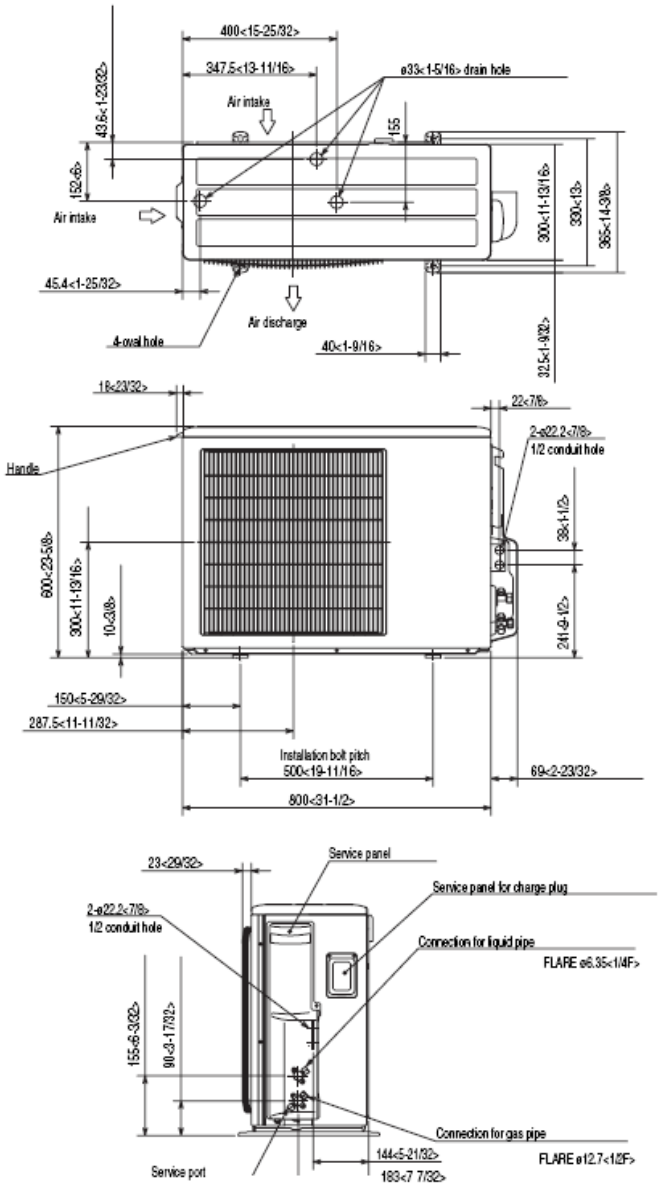
* With wind baffle installed. If not installed, the minimum rated temperature is 23°FDB.

R410A INVERTER

Notes:

DIMENSIONS: PKA-A12GAL & PUY-A12NHA





C SD - PKA-A12GAL / PUY-A12NHA - B - 200604 © MITSUBISHI ELECTRIC / HVAC 2006

MITSUBISHI ELECTRIC
HVAC Advanced Products Division
Mitsubishi Electric & Electronics USA, Inc.

3400 Lawrenceville Suwanee Rd
Suwanee, GA 30024
Tele: 678-376-2900 • Fax: 800-889-9904
Toll Free: 800-433-4822 (#3)
www.mehvac.com
Specifications are subject to change without notice.

CITY OF AURORA
BID PROPOSAL FORM
08-25
NETWORK DATA WIRING CLOSET AIR CONDITIONING
WITH HVAC CONTROL AND MONITORING
FOR MANAGEMENT INFORMATION SYSTEMS DIVISION
INFORMATION TECHNOLOGY DEPARTMENT

I/WE propose to furnish and install as specified in the Specifications for Bid at the following net delivered price:

No.	LOCATION	MITSUBISHI A/C UNIT	METASYS	ELECTRICAL	TOTAL
1	Building & Permits 65 Water Street				
2	Central Garage 720 N. Broadway				
3	Economic Development 43 W. Galena				
4	Fire Station #3 600 N. New Indian Trail				
5	Fire Station #7 824 Kenilworth Place				
6	Fire Station #9 2339 Diehl Road				
7	Fire Station #10 2390 W. Illinois				
8	Fire Station #12 2424 Hafenricter Road				
9	Emergency Management 1100 Mitchel Road				
10	Phillips Park Admin Building 901 Ray Moses Drive				
	TOTALS:				

CITY OF AURORA
BID PROPOSAL FORM
08-25
NETWORK DATA WIRING CLOSET AIR CONDITIONING
WITH HVAC CONTROL AND MONITORING
FOR MANAGEMENT INFORMATION SYSTEMS DIVISION
INFORMATION TECHNOLOGY DEPARTMENT

Inquiries: The following is the contact if any questions should arise regarding the bidding process:

Mr. Bruce Lawrie, Director of Purchasing
Purchasing Division
City of Aurora
44 E. Downer Place
Aurora, Illinois 60507
(630)844-3618

The following is the contact if any questions should arise regarding the bid specifications:

Mr. Christopher DeBolt, Maintenance Mechanic
Central Services Division
City of Aurora
44 E. Downer Place
Aurora, Illinois 60507
(630)844-3618

Complete delivery of equipment will be made within _____ days upon receipt of the order.

No additional charges over total net bid price will be accepted without written approval of the Purchasing Director.

All bid prices shall be shown as delivered Aurora Destination, Prepaid and Allowed.

Do not add state, federal or local taxes. Municipalities are exempt. Exemption Certification Permit No. Illinois E9996-0842-05.

The City of Aurora reserves the right to reject any or all Bids, or parts thereof, and to waive any technicality, informality or irregularity in the Bids received, and to disregard all nonconforming or conditional Bids or counter-proposals and to hold the best Bids for ninety (90) days from the opening date set forth above. The City further reserves the right to award the Bid to the lowest responsible Bidder whose offer best responds in quality, fitness and capacity to the requirements of the proposed Work or usage and therefore is in the best interest of the City.

CITY OF AURORA
BID PROPOSAL FORM
08-25
NETWORK DATA WIRING CLOSET AIR CONDITIONING
WITH HVAC CONTROL AND MONITORING
FOR MANAGEMENT INFORMATION SYSTEMS DIVISION
INFORMATION TECHNOLOGY DEPARTMENT

BID SUBMITTED BY

COMPANY_____

ADDRESS _____

CITY, STATE, ZIP_____

PREPARER'S NAME_____
Please Type

CONTACT PERSON _____

AUTHORIZED SIGNATURE_____
Title

PHONE # (_____) _____ FAX # (_____) _____

EMAIL ADDRESS _____ DATE_____

APPENDIX C

CONTRACT

1. THIS AGREEMENT made and concluded this _____ day of _____, 2008, between the **CITY OF AURORA**, acting by and through its Mayor and City Council, known as the party of the first part, and _____ known as the party of the second part.

2. WITNESSETH: That for and in consideration of the payments and agreements mentioned in the Bid Package hereto attached, to be made and performed by the party of the first part, and according to the terms expressed in the bond referring to these presents, the party of the second part agrees with said party of the first part at its own proper cost and expense to do all the work, furnish all materials and all labor necessary to complete the work in accordance with the terms of the Bid Package including the Invitation to Bid, Instructions to Bidders, Bidder's Certifications, Special Conditions and Specifications, Bid Proposal Form and Bonds, all of which documents are hereto attached and made a part hereof, and in accordance with Bid Package entitled **"**Network Data Wiring Closet Air Conditioning with HVAC Control and Monitoring for Management Information Systems Division Information Technology Department**"**, which have been delivered to party of the second part under separate cover.

3. Said party of the second part shall not assign said Contract or any interest therein.

4. It is also understood and agreed that said Invitation to Bid, Instructions to Bidders, Bidder's Certifications, Special Conditions and Specifications, Bid Proposal Form, Bonds and insurance certificates hereto attached are all essential documents of this contract and are a part hereof.

5. The said parties hereto, for themselves, their successors and assigns, hereby agree to the full performance of the covenants herein contained and as set forth in the attached documents.

IN WITNESS WHEREOF, the **CITY OF AURORA** has caused this contract to be signed with its corporate name by its Mayor who is thereto duly authorized, and corporate seal to be affixed by its City Clerk, and _____ has hereunto set its corporate name by its President, who is thereto duly authorized on this day and year above written.

FOR CITY OF AURORA

By: _____
Mayor

ATTEST:

_____
City Clerk

FOR _____

By_____

(SEAL) (CORPORATE SEAL)

AFFIDAVIT OF COMPLIANCE

APPLICANT: _____
NAME

_____
ADDRESS

As a condition of entering into a contract with the City of Aurora, and under oath and penalty of perjury and possible termination of contract rights and debarment, the undersigned,

(Please Print or Type) _____

Being first duly sworn on oath, deposes and states that he is

_____

(The sole owner, a partner, a joint venturer, the President, the Secretary, etc.) Of:

_____
NAME OF COMPANY

The party making the foregoing bid, and that he has the authority to make any disclosures and certifications required by this Affidavit on behalf of the bidder and that all the information contained in this Affidavit is true and correct in both substance and fact.

BIDDER'S CERTIFICATION

I/We hereby certify that:

A. A complete set of Bid papers, as intended, has been received, and that I/We will abide by the contents and/or information received and/or contained herein.

B. I/We have not entered into any collusion or other unethical practices with any person, firm, or employee of the City which would in any way be construed as unethical practice.

C. I/We comply with all current Federal, State and Local laws, statutes, rules, and regulations referencing equal opportunity employment practices including those contained in Public Act 87-1257 (effective July 1, 1993).

D. I/We are in compliance with the most current "Prevailing Rate" of wages for laborers, mechanics and other workers as required by the City of Aurora Ordinance No. O08-56, adopted on June 24, 2008.

E. I/We have adopted a written sexual harassment policy which is in accordance with the requirements of Federal, State and local laws, regulations and policies and further certify that I/We are also in compliance with all other requirements contained in 775 ILCS 5/2-105 (A).

F. I/We operate a drug free environment and drugs are not allowed in the workplace or satellite locations as well as City of Aurora sites in accordance with the Drug Free Workplace Act of January, 1992.

G. The Bidder is not barred from bidding on the Project, or entering into this contract as a result of a violation of either Section 33E-3 or 33E-4 of the Illinois Criminal Code, or any similar offense of "bid rigging" or "bid rotating" of any state or the United States.

H. I/We will abide by all other Federal, State and local codes, rules, regulations, ordinances and statutes.

COMPANY NAME _____

ADDRESS _____

CITY/STATE/ZIP CODE _____

NAME OF CORPORATE/COMPANY OFFICIAL _____

PLEASE TYPE OR PRINT CLEARLY

TITLE _____

AUTHORIZED OFFICIAL SIGNATURE _____

DATE _____

TELEPHONE (_____)_____

Subscribed and Sworn to
Before me this _____ day
of _____, 2008

_____
Notary Public

STATE OF ILLINOIS)
) ss.
COUNTY OF KANE)

BIDDER'S TAX CERTIFICATION

(BIDDER'S EXECUTING OFFICER), being first duly sworn on oath, deposes and states that all statements made herein are made on behalf of the Bidder, that this despondent is authorized to make them and that the statements contained herein are true and correct.

Bidder deposes, states and certifies that Bidder is not barred from contracting with any unit of local government in the State of Illinois as result of a delinquency in payment of any tax administered by the Illinois Department of Revenue unless Bidder is contesting, in accordance with the procedures established by the appropriate statute, its liability for the tax or the amount of the tax, all as provided for in accordance with 65 ILCS 5/11-42.1-1.

DATED this _____ day of _____, 2008.

By _____
(Print Bidder's Executing Officer)

_____
(Signature of Bidder's Executing Officer)

_____
(Title)

ATTEST/WITNESS:

By _____

Title _____

Subscribed and sworn to before me this

_____ day of _____, 2008

_____
Notary Public

(SEAL)

APPENDIX F

Kane County Prevailing Wage for July 2008

Trade Name	RG	TYP	C	Base	FRMAN	*M-F>8	OSA	OSH	H/W	Pensn	Vac	Trng
ASBESTOS ABT-GEN		ALL		34.750	35.250	1.5	1.5	2.0	8.830	6.170	0.000	0.270
ASBESTOS ABT-MEC		BLD		26.180	27.930	1.5	1.5	2.0	8.760	6.410	0.000	0.310
BOILERMAKER		BLD		39.450	43.000	2.0	2.0	2.0	6.720	8.490	0.000	0.300
BRICK MASON		BLD		38.030	41.830	1.5	1.5	2.0	8.000	9.970	0.000	0.550
CARPENTER		ALL		37.770	39.770	1.5	1.5	2.0	8.960	6.920	0.000	0.490
CEMENT MASON		ALL		37.300	39.300	2.0	1.5	2.0	7.000	9.510	0.000	0.150
CERAMIC TILE FNSHER		BLD		32.150	0.000	2.0	1.5	2.0	6.150	7.370	0.000	0.380
COMMUNICATION TECH	N	BLD		29.960	31.760	1.5	1.5	2.0	5.842	6.290	0.000	0.375
COMMUNICATION TECH	S	BLD		32.440	34.540	1.5	1.5	2.0	8.890	8.110	0.000	0.650
ELECTRIC PWR EQMT OP		ALL		29.180	37.490	1.5	1.5	2.0	4.750	8.180	0.000	0.220
ELECTRIC PWR GRNDMAN		ALL		22.610	37.490	1.5	1.5	2.0	4.750	6.330	0.000	0.170
ELECTRIC PWR LINEMAN		ALL		34.710	37.490	1.5	1.5	2.0	4.750	9.720	0.000	0.260
ELECTRIC PWR TRK DRV		ALL		23.350	37.490	1.5	1.5	2.0	4.750	6.540	0.000	0.180
ELECTRICIAN	N	ALL		40.470	44.510	1.5	1.5	2.0	9.920	9.300	0.000	0.500
ELECTRICIAN	S	BLD		40.390	44.430	1.5	1.5	2.0	8.890	10.10	0.000	0.810
ELEVATOR CONSTRUCTOR		BLD		43.925	49.420	2.0	2.0	2.0	8.775	6.960	2.640	0.000
FENCE ERECTOR		ALL		38.120	40.030	2.0	2.0	2.0	8.140	14.49	0.000	0.230
GLAZIER		BLD		37.000	38.500	1.5	1.5	2.0	7.340	12.05	0.000	0.690
HT/FROST INSULATOR		BLD		37.400	39.150	1.5	1.5	2.0	8.760	10.11	0.000	0.310
IRON WORKER		ALL		38.120	40.030	2.0	2.0	2.0	8.140	14.49	0.000	0.230
LABORER		ALL		34.750	35.500	1.5	1.5	2.0	8.870	6.130	0.000	0.270
LATHER		BLD		37.770	39.770	1.5	1.5	2.0	8.960	6.920	0.000	0.490
MACHINIST		BLD		38.390	40.390	2.0	2.0	2.0	4.880	6.550	2.650	0.000
MARBLE FINISHERS		ALL		28.650	0.000	1.5	1.5	2.0	7.920	9.970	0.000	0.550
MARBLE MASON		BLD		38.030	41.830	1.5	1.5	2.0	8.000	9.970	0.000	0.550
MATERIAL TESTER I		ALL		24.750	0.000	1.5	1.5	2.0	8.870	6.130	0.000	0.270
MATERIALS TESTER II		ALL		29.750	0.000	1.5	1.5	2.0	8.870	6.130	0.000	0.270
MILLWRIGHT		ALL		36.520	38.520	1.5	1.5	2.0	7.960	5.920	0.000	0.490
OPERATING ENGINEER		BLD	1	41.550	45.550	2.0	2.0	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER		BLD	2	40.250	45.550	2.0	2.0	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER		BLD	3	37.700	45.550	2.0	2.0	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER		BLD	4	35.950	45.550	2.0	2.0	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER		HWY	1	39.750	43.750	1.5	1.5	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER		HWY	2	39.200	43.750	1.5	1.5	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER		HWY	3	37.150	43.750	1.5	1.5	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER		HWY	4	35.750	43.750	1.5	1.5	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER		HWY	5	34.550	43.750	1.5	1.5	2.0	6.850	5.600	1.900	0.700
ORNAMNTL IRON WORKER		ALL		38.120	40.030	2.0	2.0	2.0	8.140	14.49	0.000	0.230
PAINTER		ALL		37.830	39.830	1.5	1.5	1.5	6.750	6.750	0.000	0.500
PAINTER SIGNS		BLD		28.970	32.520	1.5	1.5	1.5	2.600	2.310	0.000	0.000
PILEDRIVER		ALL		37.770	39.770	1.5	1.5	2.0	8.960	6.920	0.000	0.490
PIPEFITTER		BLD		37.260	39.260	1.5	1.5	2.0	8.950	9.990	0.000	1.000
PLASTERER		BLD		36.100	38.270	1.5	1.5	2.0	7.000	7.740	0.000	0.400
PLUMBER		BLD		37.260	39.260	1.5	1.5	2.0	8.950	9.990	0.000	1.000
ROOFER		BLD		35.000	38.000	1.5	1.5	2.0	6.800	3.870	0.000	0.330
SHEETMETAL WORKER		BLD		40.210	42.210	1.5	1.5	2.0	7.410	9.620	0.000	0.680
SIGN HANGER		BLD		26.070	27.570	1.5	1.5	2.0	3.800	3.550	0.000	0.000
SPRINKLER FITTER		BLD		40.500	42.500	1.5	1.5	2.0	8.500	6.850	0.000	0.500
STEEL ERECTOR		ALL		38.120	40.030	2.0	2.0	2.0	8.140	14.49	0.000	0.230
STONE MASON		BLD		38.030	41.830	1.5	1.5	2.0	8.000	9.970	0.000	0.550
TERRAZZO FINISHER		BLD		33.810	0.000	1.5	1.5	2.0	6.150	9.850	0.000	0.310
TERRAZZO MASON		BLD		37.390	40.390	1.5	1.5	2.0	6.150	11.11	0.000	0.350
TILE MASON		BLD		38.630	42.630	2.0	1.5	2.0	6.150	9.010	0.000	0.500
TRAFFIC SAFETY WRKR		HWY		24.300	25.900	1.5	1.5	2.0	3.780	1.875	0.000	0.000

TRUCK DRIVER	ALL	1	32.550	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.150
TRUCK DRIVER	ALL	2	32.700	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.150
TRUCK DRIVER	ALL	3	32.900	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.150
TRUCK DRIVER	ALL	4	33.100	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.150
TUCKPOINTER	BLD		38.200	39.200	1.5	1.5	2.0	6.580	9.550	0.000	0.280

Legend:

M-F>8 (Overtime is required for any hour greater than 8 worked each day, Monday through Friday.
OSA (Overtime is required for every hour worked on Saturday)
OSH (Overtime is required for every hour worked on Sunday and Holidays)
H/W (Health & Welfare Insurance)
Pensn (Pension)
Vac (Vacation)
Trng (Training)

Explanations

KANE COUNTY

ELECTRICIANS AND COMMUNICATIONS TECHNICIAN (NORTH) - Townships of Burlington, Campton, Dundee, Elgin, Hampshire, Plato, Rutland, St. Charles (except the West half of Sec. 26, all of Secs. 27, 33, and 34, South half of Sec. 28, West half of Sec. 35), Virgil and Valley View CCC and Elgin Mental Health Center.

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial/Decoration Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration such as the day after Thanksgiving for Veterans Day. If in doubt, please check with IDOL.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER

The grouting, cleaning, and polishing of all classes of tile, whether for interior or exterior purposes, all burned, glazed or unglazed products; all composition materials, granite tiles, warning detectable tiles, cement tiles, epoxy composite materials, pavers, glass, mosaics, fiberglass, and all substitute materials, for tile made in tile-like units; all mixtures in tile like form of cement, metals, and other materials that are for and intended for use as a finished floor surface, stair treads, promenade roofs, walks, walls, ceilings, swimming pools, and all other places where tile is to form a finished

interior or exterior. The mixing of all setting mortars including but not limited to thin-set mortars, epoxies, wall mud, and any other sand and cement mixtures or adhesives when used in the preparation, installation, repair, or maintenance of tile and/or similar materials. The handling and unloading of all sand, cement, lime, tile, fixtures, equipment, adhesives, or any other materials to be used in the preparation, installation, repair, or maintenance of tile and/or similar materials. Ceramic Tile Finishers shall fill all joints and voids regardless of method on all tile work, particularly and especially after installation of said tile work. Application of any and all protective coverings to all types of tile installations including, but not be limited to, all soap compounds, paper products, tapes, and all polyethylene coverings, plywood, masonite, cardboard, and any new type of products that may be used to protect tile installations, Blastrac equipment, and all floor scarifying equipment used in preparing floors to receive tile. The clean up and removal of all waste and materials. All demolition of existing tile floors and walls to be re-tiled.

COMMUNICATIONS TECHNICIAN

Construction, installation, maintenance and removal of telecommunication facilities (voice, sound, data and video), telephone, security systems, fire alarm systems that are a component of a multiplex system and share a common cable, and data inside wire, interconnect, terminal equipment, central offices, PABX and equipment, micro waves, V-SAT, bypass, CATV, WAN (wide area network), LAN (local area networks), and ISDN (integrated system digital network), pulling of wire in raceways, but not the installation of raceways.

MARBLE FINISHER

Loading and unloading trucks, distribution of all materials (all stone, sand, etc.), stocking of floors with material, performing all rigging for heavy work, the handling of all mateiral that may be needed for the installation of such materials, building of scaffolding, polishing if needed, patching, waxing of material if damaged, pointing up, caulking, grouting and cleaning of marble, holding water on diamond or Carborundum blade or saw for setters cutting, use of tub saw or any other saw needed for preparation of material, drilling of holes for wires that anchor material set by setters, mixing up of molding plaster for installation of material, mixing up thin set for the installation of material, mixing up of sand to cement for the installatin of material and such other work as may be required in helping a Marble Setter in the handling of all material in the erection or installation of interior marble, slate, travertine, art marble, serpentine, alberene stone, blue stone, granite and other stones (meaning as to stone any foreign or domestic materials as are specified and used in building interiors and experiors and customarily known as stone in the trade), carrara, sanionyx, vitrolite and similar opaque glass and the laying of all marble tile, terrazzo tile, slate tile and precast tile, steps, risers treads, base, or any other materials that may be used as substitutes for any of the aforementioned materials and which are used on interior and experior which sare installed in a similar manner.

MATERIAL TESTER I: Hand coring and drilling for testing of materials; field inspection of uncured concrete and asphalt.

MATERIAL TESTER II: Field inspection of welds, structural steel, fireproofing, masonry, soil, facade, reinforcing steel, formwork,

cured concrete, and concrete and asphalt batch plants; adjusting proportions of bituminous mixtures.

TRAFFIC SAFETY - work associated with barricades, horses and drums used to reduce lane usage on highway work, the installation and removal of temporary lane markings, and the installation and removal of temporary road signs.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION
Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-alls; Fork Lifts and Hoisters; Helpers; Mechanics Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; Teamsters; Unskilled dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Crets and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnapulls or Turnatrailers when pulling other than self-loading equipment or similar equipment under 16 cubic yards; Mixer Trucks under 7 yeards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Crets and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnatrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

OPERATING ENGINEERS - BUILDING

Class 1. Mechanic; Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson attachment; Batch Plant; Benoto; Boiler and Throttle Valve; Caisson Rigs; Central Redi-Mix Plant; Combination Back Hoe Front End-loader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver; Concrete Placer; Concrete Placing Boom; Concrete Pump (Truck Mounted); Concrete Tower; Cranes, All; Cranes, Hammerhead; Cranes, (GCI and similar Type); Creter Crane; Crusher, Stone, etc.; Derricks, All; Derricks, Traveling; Formless Curb and Gutter Machine; Grader, Elevating; Grouting Machines; Highlift Shovels or Front Endloader 2-1/4 yd. and over; Hoists, Elevators, outside type rack and pinion and similar machines; Hoists, one, two and three Drum; Hoists, Two Tugger One Floor; Hydraulic Backhoes; Hydraulic Boom Trucks; Hydro Vac (and similar equipment); Locomotives, All; Motor Patrol; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes; Squeeze Cretes-screw Type Pumps; Raised and Blind Hole Drill; Roto Mill Grinder; Scoops - Tractor Drawn; Slip-form Paver; Straddle Buggies; Tournapull; Tractor with Boom and Side Boom; Trenching Machines.

Class 2. Boilers; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Greaser Engineer; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, inside Freight Elevators; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; Laser Screed; Rock Drill (self-propelled); Rock Drill (truck mounted); Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Combination - Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators - (Rheostat Manual Controlled); Hydraulic Power Units (Pile Driving, Extracting, and Drilling); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 small Electric Drill Winches; Bobcat (up to and including 3/4 cu. yd.).

Class 4. Bobcats and/or other Skid Steer Loaders; Oilers; and Brick Forklift.

OPERATING ENGINEERS - HEAVY AND HIGHWAY CONSTRUCTION

Class 1. Craft Foreman; Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfire; Asphalt Spreader; Autograder/GOMACO or other similar type machines; ABG Paver; Backhoes with Caisson attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted): Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Hammerhead, Linden, Peco & Machines of a like nature; Crete Crane; Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Dowell machine with Air Compressor; Dredges; Field Mechanic-Welder; Formless Curb and Gutter Machine; Gradall and Machines of a like nature; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Mounted; Hoists, One, Two and Three Drum; Hydraulic Backhoes; Backhoes with shear attachments; Mucking Machine; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Roto Mill Grinder; Slip-Form Paver; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; Hydraulic Telescoping Form (Tunnel); Tractor Drawn Belt Loader (with attached pusher - two engineers); Tractor with Boom; Tractaire with Attachments; Trenching Machine; Truck Mounted Concrete Pump with Boom; Raised or Blind Hole; Drills (Tunnel Shaft); Underground Boring and/or Mining Machines; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S Series to and including 27 cu. ft.; Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw; Conveyor Muck Cars (Haglund or Similar Type); Drills, All; Finishing Machine - Concrete; Greaser Engineer; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro-Blaster; All Locomotives, Dinky; Pump Cretes; Squeeze Cretes-Screw Type Pumps, Gypsum Bulker and Pump; Roller,

Asphalt; Rotory Snow Plows; Rototiller, Seaman, etc., self-propelled; Scoops - Tractor Drawn; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper; Scraper - Prime Mover in Tandem (Regardless of Size); Tank Car Heater; Tractors, Push, Pulling Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Fireman on Boilers; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep Diggers; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper - Form-Motor Driven.

Class 4. Air Compressor; Combination - Small Equipment Operator; Directional Boring Machine; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Hydro-Blaster; Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Tractaire; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. Bobcats (all); Brick Forklifts; Oilers.

TERRAZZO FINISHER

The handling of sand, cement, marble chips, and all other materials that may be used by the Mosaic Terrazzo Mechanic, and the mixing, grinding, grouting, cleaning and sealing of all Marble, Mosaic, and Terrazzo work, floors, base, stairs, and wainscoting by hand or machine, and in addition, assisting and aiding Marble, Masonic, and Terrazzo Mechanics.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 618/993-7271 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.